

**Amendments to the Claims**

*Please amend the claims as set forth below.*

1.-39. (Cancelled)

40. (New)       Apparatus for producing a yarn from one or more slivers, the apparatus including:

    a first reciprocating twisting stage including one or more twist rollers arranged to move reciprocally along the axis of rotation of the one or more twist rollers for simultaneously twisting said one or more slivers;

    a non-reciprocating roller for pressing a core filament into a respective one of said slivers as said filament and sliver are pressed against the non-reciprocating roller;

    a guide for passing a core filament and a respective one of said slivers against the non-reciprocating roller prior to the first reciprocating twisting stage; and

    a control system for controlling variation of one or both of (a) the rotational speed of the one or more twist rollers and (b) the speed of the one or more twist rollers along said axis of rotation, to vary the twist profile imparted to the yarn.

41. (New)       Apparatus according to claim 40, wherein the control system enables a user to program a twist profile to be imparted to a production run, series of production runs, or part run, of yarn.

42. (New)       Apparatus according to claim 41, wherein the control system is microprocessor based and includes a user operable keyboard and display.

43. (New)       Apparatus according to claim 40, wherein the apparatus also includes one or more guides positioned after the one or more twist rollers to cause one or more of the strands to pass over a longer path than one or more other strands before the strands are brought together to form a multi-ply yarn, one or more of which guides are movable to enable variation of the position of one or more guides between production runs.

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

44. (New) Apparatus according to claim 43, wherein the apparatus also includes an electro-mechanical guide repositioning system for moving one or more of said guides, wherein the repositioning system is also programmably controllable by the control system of the apparatus.

45. (New) Apparatus according to claim 40, wherein the apparatus also includes a second said reciprocating twisting stage after the first reciprocating twisting stage and wherein said second reciprocating twisting stage is arranged to impart twist to the sliver(s) in areas of non-twist that are located between areas of twist imparted to the sliver(s) by the first reciprocating twist stage.

46. (New) A method of using the apparatus of claim 40 to produce a yarn from one or more slivers, the method comprising using said guide to pass a core filament and a respective one of said slivers against a non-reciprocating roller;  
using the non-reciprocating roller to press the core filament into the sliver;  
subsequently passing the one or more slivers between the reciprocating one or more twist rollers to simultaneously twist the slivers; and  
using the control system to vary the rotational speed of the one or more twist rollers and/or the speed of reciprocal movement of the one or more twist rollers and/or the extent of reciprocal movement of the one or more twist rollers along the axis of rotation.

47. (New) A yarn made according to the method of claim 46.

48. (New) Apparatus for producing a yarn from one or more slivers, the apparatus including:  
a first reciprocating twisting stage including one or more twist rollers arranged to move reciprocally along the axis of rotation of the one or more twist rollers for simultaneously twisting said one or more slivers;

---

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

wherein the one or more twist rollers are mounted so that the extent of reciprocal movement of the one or more twist rollers along the axis of rotation can be controlled and varied to vary a twist profile imparted to the yarn.

49. (New) Apparatus according to claim 48, wherein the control system enables a user to program the twist profile to be imparted to a production run, series of production runs, or part run, of yarn.

50. (New) Apparatus according to claim 49, wherein the control system is microprocessor based and includes a user operable keyboard and display.

51. (New) Apparatus according to claim 48, wherein the apparatus also includes one or more guides positioned after the one or more twist rollers to cause one or more of the strands to pass over a longer path than one or more other strands before the strands are brought together to form a multi-ply yarn, one or more of which guides are movable to enable variation of the position of one or more guides between production runs.

52. (New) Apparatus according to claim 51, wherein the apparatus also includes an electro-mechanical guide repositioning system for moving one or more of said guides, wherein the repositioning system is also programmably controllable by the control system of the apparatus.

53. (New) Apparatus according to claim 48, wherein the apparatus also includes a second said reciprocating twisting stage after the first reciprocating twisting stage and wherein said second reciprocating twisting stage is arranged to impart twist to the one or more slivers in areas of non-twist that are located between areas of twist imparted to the one or more slivers by the first reciprocating twist stage.

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

54. (New) Apparatus according to claim 48, wherein the apparatus further includes:  
a control system for controlling variation of the rotational speed of the one or more twist rollers and the extent of reciprocal movement of the one or more twist rollers along the axis of rotation to enable further variation of the twist profile imparted to the yarn.
55. (New) Apparatus according to claim 54, wherein the control system enables a user to program the twist profile to be imparted to a production run, series of production runs, or part run, of yarn.
56. (New) Apparatus according to claim 55, wherein the control system is microprocessor based and includes a user operable keyboard and display.
57. (New) Apparatus according to claim 54, wherein the apparatus also includes one or more guides positioned after the one or more twist rollers to cause one or more of the strands to pass over a longer path than one or more other strands before the strands are brought together to form a multi-ply yarn, one or more of which guides are movable to enable variation of the position of one or more guide(s) between production runs.
58. (New) Apparatus according to claim 57, wherein the apparatus also includes an electro-mechanical guide repositioning system for moving one or more of said guides, wherein the repositioning system is also programmably controllable by the control system of the apparatus.
59. (New) Apparatus according to claim 54, wherein the apparatus also includes a second reciprocating twisting stage after the first reciprocating twisting stage and wherein said second reciprocating twisting stage is arranged to impart twist to the one or more slivers in areas of non-twist that are located between areas of twist imparted to the one or more slivers by the first reciprocating twist stage.

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

60. (New) Apparatus according to claim 48, wherein the apparatus further includes:  
a control system for controlling variation of the speed and extent of reciprocal movement of the one or more twist rollers along the axis of rotation to enable further variation of the twist profile imparted to the yarn.
61. (New) Apparatus according to claim 60, wherein the control system enables a user to program the twist profile to be imparted to a production run, series of production runs, or part run, of yarn.
62. (New) Apparatus according to claim 61, wherein the control system is microprocessor based and includes a user operable keyboard and display.
63. (New) Apparatus according to claim 60, wherein the apparatus also includes one or more guides positioned after the one or more twist rollers to cause one or more of the strands to pass over a longer path than one or more other strands before the strands are brought together to form a multi-ply yarn, one or more of which guides are movable to enable variation of the position of one or more guides between production runs.
64. (New) Apparatus according to claim 63, wherein the apparatus also includes an electro-mechanical guide repositioning system for moving one or more of said guides, wherein the repositioning system is also programmably controllable by the control system of the apparatus.
65. (New) Apparatus according to claim 60, wherein the apparatus also includes a second said reciprocating twisting stage after the first reciprocating twisting stage and wherein said second reciprocating twisting stage is arranged to impart twist to the one or more slivers in areas of non-twist that are located between areas of twist imparted to the one or more slivers by the first reciprocating twist stage.

---

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

66. (New)        Apparatus according to claim 48, wherein the apparatus further includes:  
                  a control system for controlling variation of the rotational speed of the one or more twist  
                  rollers and the speed and extent of reciprocal movement of the one or more twist rollers along  
                  the axis of rotation to enable further variation of the twist profile imparted to the yarn.
67. (New)        Apparatus according to claim 66, wherein the control system enables a user to  
                  program the twist profile to be imparted to a production run, series of production runs, or part  
                  run, of yarn.
68. (New)        Apparatus according to claim 67, wherein the control system is microprocessor  
                  based and includes a user operable keyboard and display.
69. (New)        Apparatus according to claim 66, wherein the apparatus also includes one or  
                  more guides positioned after the one or more twist rollers to cause one or more of the strands to  
                  pass over a longer path than one or more other strands before the strands are brought together to  
                  form a multi-ply yarn, one or more of which guides are movable to enable variation of the  
                  position of the one or more guides between production runs.
70. (New)        Apparatus according to claim 69, wherein the apparatus also includes an  
                  electro-mechanical guide repositioning system for moving one or more of said guides, wherein  
                  the repositioning system is also programmably controllable by the control system of the  
                  apparatus.
71. (New)        Apparatus according to claim 66, wherein the apparatus also includes a second  
                  said reciprocating twisting stage after the first reciprocating twisting stage and wherein said  
                  second reciprocating twisting stage is arranged to impart twist to the one or more slivers in areas  
                  of non-twist that are located between areas of twist imparted to the one or more slivers by the  
                  first reciprocating twist stage.

**In re the Application of David Arthur Lee**  
**Application No. 10/534,957**  
**Docket No. 0074-522135**

72. (New) Apparatus according to any one of claims 48, 54, 60 and 66, wherein the apparatus includes a non-reciprocating roller for pressing a core filament into a respective one of said slivers as said filament and sliver are pressed against the non-reciprocating roller, and a guide for passing a core filament and a respective one of said one or more slivers against the non-reciprocating roller prior to the first reciprocating twisting stage.

73. (New) Apparatus according to any one of claims 48, 54, 60, and 66, wherein the apparatus also includes a pair of drafting rollers or drafting belts before the first reciprocating twisting stage.

74. (New) A method of using the apparatus of claim 72 to produce a yarn from one or more slivers, the method comprising using said guide to pass a core filament and a respective one of said slivers against a non-reciprocating roller;

using the non-reciprocating roller to press the core filament into the respective one of said slivers;

subsequently passing the one or more slivers between the one or more twist rollers to simultaneously twist the slivers; and

using the control system to vary the rotational speed of the one or more twist rollers and/or the speed of reciprocal movement of the one or more twist rollers and/or the extent of reciprocal movement of the one or more twist rollers along the axis of rotation to create a yarn having a predetermined twist profile.

75. (New) A yarn made according to the method of claim 74.